

ABSTRACT

The invention relates to a process for producing pellets of a nuclear fuel based on a $(U,Pu)O_2$ or $(U,Th)O_2$ mixed oxide which comprises a) preparing a primary mixture of powders by co-milling a UO_2 powder P1 and a PuO_2 or ThO_2 powder P2, b) sieving this mixture, c) preparing a final mixture of powders by diluting the undersize with a UO_2 powder P3, d) pelleting this final mixture, and e) sintering the pellets, and in which at least one compound is incorporated chosen from the group consisting of the oxides of Cr, Al, Ti, Mg, V and Nb, precursors thereof and inorganic compounds capable of providing the element sulphur during step e), is incorporated in at least one of the powders P1, P2 and P3 and/or in at least one of the primary or final mixture of powders.